

SUPPORT FOR THE AMENDMENTS

Formula (III) on pages 10 and 19 of the specification are corrected to show a carbonyl carbon in the blank space. This corrected structure is supported by the description in the specification beginning on page 22, line 36, and bridging to page 25, line 21.

Support for the amendment of Claim 1 is found beginning on page 12, line 26, and bridging to page 13, line 5 (0.5-20% by weight (I)). Formulas (I) and (II) are corrected to show ethylenically unsaturated ester compounds consistent with the formulas in the specification and original claims. Formula (III) is corrected to show a carbonyl C in the blank space in the formula as supported above.

Claims 1-9 and 12-16 are amended to use wording and structure consistent with U.S. patent law practice.

Support for the amendment of Claim 9 is found on page 27, lines 1-5, in the specification.

No new matter is believed added to this application by entry of this amendment.

Claims 1-17 are active.

REMARKS/ARGUMENTS

The claimed invention is directed to an lubricant composition for modern gearboxes, engines and hydraulic pumps. Such lubricant compositions containing highly effective friction modifying additives which are stable to oxidation and thermal stress, have increased solubility in nonpolar lubricant oils and improve the flow properties of the lubricant oil are sought.

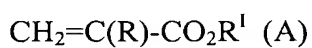
The claimed invention addresses this problem by providing the lubricant composition according to Claim 1 and claims dependent thereon. No such lubricant composition is disclosed or suggested in the cited references.

Applicants wish to Thank Examiner Vasisth and Examiner Goloboy for the useful and courteous discussion of this application with Applicants' U.S. representative on October 28, 2008. At that time, Applicants' U.S. representative discussed possible amendments to the claims and amendments to correct errors in the specification and claims. The following reiterates and expands upon that discussion.

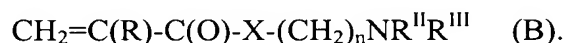
Applicants respectfully note that Claim 1 is herein amended to recite that the hydrophobic segment P comprises 0.5 to 20% by weight of the ethylenically unsaturated ester of formula (I).

The rejection of Claims 1-14 and 17 under 35 U.S.C. 103(a) over Pappas et al. (U.S. 3,816,314) is respectfully traversed.

Pappas describes an oil additive which is an oil soluble block copolymer of a comonomer A of the formula:



and comonomer B of the formula:



R^I in formula (A) is a C₈ to C₂₂ substantially straight chain alkyl group. Nowhere does this reference disclose or suggest a lubricant composition comprising a block copolymer according to the claimed invention where the hydrophobic segment P comprises one or more ethylenically unsaturated ester compounds of formula (1) where R^I is a **linear or branched alkyl radical having 1 to 5 carbon atoms** and one or more ethylenically unsaturated ester compounds of formula (1) where R⁴ is a linear or branched alkyl radical having 6 to 30 carbon atoms.

In view of the above, Applicants respectfully submit that the cited reference can neither anticipate nor render obvious the claimed invention. Accordingly, withdrawal of the rejection of Claims 1-14 and 17 under 35 U.S.C. 103(a) over Pappas is respectfully requested.

The rejection of Claims 1-6 and 15 under 35 U.S.C. 103(a) over Roos et al. (U.S. 6,348,554) is respectfully traversed.

Roos describes a method for preparing a liquid polymer composition employing initiators with a transferable atomic group and a transition metal catalyst in the presence of a coordinating ligand (Abstract). The reference describes that

“Polymers with predetermined architecture can be obtained in a simple way with the aid of this method. These possibilities result from the “living” nature of the polymerization method. These structures include among others, block copolymers, gradient copolymers, star copolymers, highly branched polymers, polymers with reactive end groups and graft copolymers.” (Col. 12 ,line 66, bridging to Col. 13)

“The liquid polymer composition prepared in this way at room temperature or higher temperatures can be used without additional purification, for example, as an additive in lubricants.” (Col. 14, lines 22-25)

However, Applicants respectfully submit that nowhere does this reference disclose or suggest that a **block copolymer** as according to the claimed invention would provide the significant and unexpectedly reduced Friction Coefficient values at low mean speed shown in Figures 2-5 of the specification. Figure 2 shows the Friction Coefficient of a block copolymer compared to a random copolymer of the same monomer composition. Applicants state:

“Figure 2 shows that the lubricant which comprises the VI improver according to Example 1 has a distinctly reduced frictional value from a speed of 0.4 m/s. The frictional profile of the Stribeck curve is shifted to lower speeds to such an extent that, within the measuring capabilities of the mini traction machine down to 0.0056 m/s, no significant rise in the coefficient of friction can be observed. In the speed range between 0.4 and 0.04 m/s, a slight lowering in the coefficient of friction with falling speed is even achieved.” (Page 49. lines 19-29)

Similar results are shown for block copolymers vs. random copolymers based on the same monomer composition in Figures 3-5. Applicants respectfully submit that Roos does

not disclose, suggest or provide motivation that would have led one of ordinary skill in the art at the time of the invention to the claimed invention. Accordingly, this reference cannot render the claimed invention obvious and withdrawal of the rejection of Claims 1-6 and 15 under 35 U.S.C. 103(a) over Roos is respectfully requested.

The rejection of Claim 15 under 35 U.S.C. 103(a) over Pappas in view of Roos is respectfully traversed.

The Office has acknowledged that Pappas does not disclose polymerization by means of initiators that have a transferable atom group and one or more catalysts having a transition metal in the presence of ligands. Roos is cited to show this deficiency.

Applicants respectfully submit that Pappas states:

“The block copolymers of the present invention preferably may be prepared by anionic polymerization at low temperatures.” (Col. 2, lines 65-67)

In contrast, Roos is directed to “radical polymerization.” (Col. 1, lines 20-29)

The Office has indicated that “it would have been obvious to one of ordinary skill in the art at the time of the invention to produce the block copolymer of Pappas by the process of Roos in order to control the constitution of the polymer.”

Applicants particularly note that Pappas states:

“The polymerization reaction generally takes place at about -70° to 0°C, and preferably at -50° to -20°C.” (Col. 4, lines 51-52)

In contrast, Roos states an especially preferable reaction temperature of 60-120°C (Col. 12, line 64).

In a Precedential Opinion rendered by the Board of Patent Appeals and Interferences in *Ex parte Whalen II* (Appeal 2007-4423, Application 10/281,142) on July 23, 2008, the Board stated:

“The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some “apparent reason to combine the known elements in the fashion claimed.””

“The Examiner has not persuasively explained why a person of ordinary skill in the art would have had a reason to modify the compositions taught by Evans, Greff⁷⁶⁷, or Taki in a way that would result in the compositions defined by the claims on appeal. Therefore, The Examiner has not made out a prima facie case of obviousness under 35 U.S.C. § 103.”

Applicants respectfully submit that in view of the above statements, the Examiner has not adequately explained, why one of ordinary skill in the art, at the time of the invention, would have combined the cited references.

In view of all of the above, Applicants respectfully submit that a conclusion of obviousness cannot be supported and withdrawal of the rejection of Claim 15 under 35 U.S.C. 103(a) over Pappas in view of Roos is respectfully requested.

The rejection of Claim 16 under 35 U.S.C. 103(a) over Roos in view of Benicewicz et al. (U.S. 6,458,968) is respectfully traversed.

Applicants respectfully note that Claim 16 depends from Claim 1. The deficiency of the primary reference was described above. Benicewicz is cited to show a dithiocarboxylic ester.

Benicewicz describes a process for preparing dithiocarboxylic esters. This secondary reference is not directed to the preparation of block copolymers according to Claim 1 of the present invention and therefore cannot cure the deficiencies of Roos. Accordingly, Applicants respectfully submit that the cited combination of references cannot render the claimed invention according to Claim 16 obvious and withdrawal of the rejection of Claim 16 under 35 U.S.C. 103(a) over Roos in view of Benicewicz is respectfully requested.

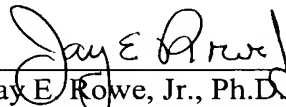
The rejection of Claims 1 and 9 under 35 U.S.C. 112, second paragraph, is believed obviated by appropriate amendment. Formula (III) is herein corrected by amendment. Claim 9 is amended to delete the description of the variable "m."

The objection to the disclosure of the specification is believed obviated by appropriate amendment.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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